

REPORT ON MACHINERY.

No. 552

No. in Survey held at *Sunderland*
Reg. Book.

Date, first Survey *July 19th* Last Survey *November 1880*

on the *Bellini (Screw vessel)*

Tons *1133 Register 1730 gross*

Master *Thomas Sawyer* Built at *Sunderland* When built *1880*

Engines made at *Sunderland* By whom made *Mr John Dickinson* when made *1880*

Boilers made at *Sunderland* By whom made *Mr John Dickinson* when made *1880*

Registered Horse Power *180* Owners *Mr Jameson Taylor* Port belonging to *Sunderland*

ENGINES, &c.—

Description of Engines *Compound inverted surface condensing*

Diameter of Cylinders *33" & 62"* Length of Stroke *42"* No. of Rev. per minute *66* Point of Cut off, High Pressure *1/2 stroke* Low Pressure *1/2 stroke*

Diameter of Screw shaft *11"* Diameter of Tunnel shaft *10 1/2"* Diameter of Crank shaft journals *11"* Diameter of Crank pin *11"* size of Crank webs *14" x 7 1/2"*

Diameter of screw *14-6"* Pitch of screw *19-0"* No. of blades *4* state whether moveable *not* total surface *64 1/2 sq ft*

No. of Feed pumps *2* diameter of ditto *4 1/2"* Stroke *22 1/2"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *2* diameter of ditto *4 1/2"* Stroke *22 1/2"* Can one be overhauled while the other is at work *yes*

Where do they pump from *Fore, engine room & after tanks, engine room well, after well & sea*

No. of Donkey Engines *2* Size of Pumps *6" x 15" stroke 4 x 6"* Where do they pump from *Fore, engine room & after tanks, engine room well, after well, sea and hotwell*

Are all the bilge suction pipes fitted with roses *yes* Are the roses always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*

No. of bilge injections *one* and sizes *4 1/2"* Are they connected to condenser, or to circulating pump *Circulating pump*

How are the pumps worked *By levers attached to after engines crosshead*

Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *Both valves and cocks*

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *yes* Are the discharge pipes above or below the deep water line *above*

Are they each fitted with a discharge valve always accessible on the plating of the vessel *yes* Are the blow off cocks fitted with a spigot and brass covering plate *yes*

What pipes are carried through the bunkers *none* How are they protected *✓*

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *yes*

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *yes*

When were stern tube, propeller, screw shaft, and all connections examined *by dock October 30th 1880* examined when dry *upon mud bank*

Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *top platform of engine room*

BOILERS, &c.—

Number of Boilers *2* Description *Cylindrical*

Working Pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* Date of test *22-9-80*

Description of ~~superheating apparatus~~ steam chest *Vertical dome connected to boiler by neck 16" diam*

Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *✓*

No. of square feet of fire grate surface in each boiler *358 sq ft* Description of safety valves *Spring direct*

No. to each boiler *two* area of each valve *9.62* Are they fitted with easing gear *yes*

No. of safety valves to superheater *✓* area of each valve *✓* are they fitted with easing gear *✓*

Smallest distance between boilers and bunkers or woodwork *14"*

Diameter of boilers *12-6"* Length of boilers *9-11"* description of riveting of shell long. seams *Treble riveted* circum. seams *Double riveted*

Thickness of shell plates *7/8 3/2"* diameter of rivet holes *1 1/4"* whether punched or drilled *drilled* pitch of rivets *4 1/2"*

Lap of plating *9"* per centage of strength of longitudinal joint *80 for rivets 42 plate* working pressure of shell by rules *82 lbs*

Size of manholes in shell *16" x 12"* size of compensating rings *4" x 7/8"*

No. of Furnaces in each boiler *2* outside diameter *3-4"* length, top *4-6"* bottom *9-0"*

Thickness of plates *Bottom 19/32 top 18/32* description of joint *Lap double riveted* rings are fitted *no* greatest length between rings *✓*

Working pressure of furnace by the rules *top 84 Bottom 81*

Combustion chamber plating, thickness, sides *1/2"* back *1/2"* top *1/2"*

Pitch of stays to ditto *sides 1/2"* back *1/2"* top *Round, Radius of 2-11"*

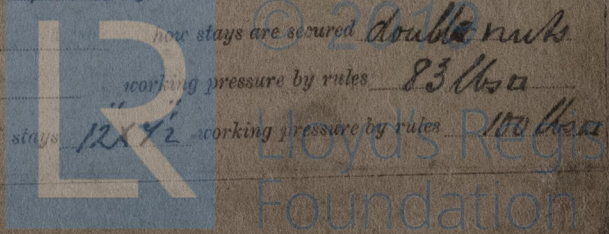
If stays are fitted with nuts or riveted heads *riveted heads* working pressure of plating by rules *112 lbs*

Diameter of stays at smallest part *1 1/8"* working pressure of ditto by rules *105 lbs*

End plates in steam space, thickness *3/4"* pitch of stays to ditto *15" x 15"* how stays are secured *double nuts*

Working pressure by rules *89 lbs* diameter of stays at smallest part *2"* working pressure by rules *83 lbs*

Front plates at bottom, thickness *3/4"* Back plates, thickness *3/4"* greatest pitch of stays *12" x 7 1/2"* working pressure by rules *100 lbs*



IRON 496-0211

25309

Diameter of tubes $3\frac{1}{4}$ " pitch of tubes $4\frac{1}{2} \times 4\frac{1}{2}$ " thickness of tube plates, front $\frac{3}{4}$ " back $\frac{3}{4}$ "
 How stayed Stay tubes pitch of stays $13\frac{1}{2} \times 9$ " width of water spaces $1\frac{1}{4}$ " 11 " $\times 9$ "
 Diameter of ~~stay~~ Steam chest $4\sim 0$ " length $8\sim 3$ "
 Thickness of plates $\frac{7}{16}$ " description of longitudinal joint double riveted lap diameter of rivet holes $\frac{3}{4}$ " pitch of rivets $2\frac{1}{2}$ "
 Working pressure of ~~by rules~~ 98 lbs Diameter of flue \sim thickness of plates \sim
 If stiffened with ~~by rules~~ distance between rings \sim Working pressure by rules \sim
 End plates ~~by rules~~ steam chest; thickness $\frac{5}{8}$ " in stayed Radius of $3\sim 6$ "
~~by rules~~ steam chest; how connected to boiler by a runa neck 16 " diam $\frac{5}{8}$ " thick which is flanged to shell, dome boiler and double riveted on both flanges

DONKEY BOILER— Description Vertical with three cross tubes

Made at Gateshead By whom made Clarke Chapman & Guernsey when made 1880
 Where fixed Stokehold working pressure 80 lbs Tested by hydraulic pressure to 160 lbs No. of Certificate 309
 Fire grate area $21\frac{1}{2}$ sq ft Description of safety valve Spring direct No. of safety valves one area of each $11\cdot 04$
 If fitted with easing gear ~~yes~~ If steam from main boilers can enter the donkey boiler no
 Diameter of donkey boiler $6\sim 0$ " length $13\sim 0$ " description of riveting Longitudinal seams double circumferential " single
 Thickness of shell plates $\frac{9}{16}$ " diameter of rivet holes $\frac{15}{16}$ " whether punched or drilled punched
 Pitch of rivets $3\frac{3}{8}$ " lap of plating 5 " per centage of strength of joint 72% for plate 73% for
 Thickness of crown plates $\frac{9}{16}$ " stayed by six stays $1\frac{1}{2}$ " diam at bottom of thread
 Diameter of furnace, top $4\sim 8$ " bottom $5\sim 4$ " length of furnace $6\sim 2$ "
 Thickness of plates $\frac{9}{16}$ " description of joint lap single riveted
 Thickness of furnace crown plates $\frac{9}{16}$ " stayed by six stays $1\frac{1}{2}$ " diam
 Working pressure of shell by rules 93 lbs working pressure of furnace by rules 73.8 lbs this leaves 7 lbs per sq in. wh.
 Diameter of uptake 18 " thickness of plates $\frac{3}{8}$ " thickness of water tubes $\frac{3}{8}$ " (is supported by two rows of $\frac{1}{2}$ " screwed stays 12 stays being in top row and 13 in bottom)

The foregoing is a correct description.
 H. Dickinson Manufacturer. except of donkey boiler

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Engines and Boilers of this vessel have been made under special survey. The material and workmanship are good and efficient.
 All the engines and boilers have been tried under steam and found very satisfactory and in my opinion are in good order and safe working condition and eligible for the notification of Lloyd's Register in the Register Book.
 (Drawings of main and donkey boilers sent herewith)

The submitted that this vessel is eligible to have the notification of Lloyd's Register recorded in the Register Book.
 M. 15/11/80

The amount of Entry Fee .. £ 3 : 0 : 0 received by me.
 Special .. £ 2 : 4 : 0
 Certificate (if required) .. £ ..
 Travelling Expense, if any, £ ..
 Committee's Minute ..
 Date .. November, 16th 1880.

Patrick Salmon
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.